left ventricle had taken place after birth. There was parenchymatous nephritis on both sides. The remaining organs were normal.—*British Med. Journal*, Nov. 1, 1879.

On the Development of the Coloured Blood-Corpuscles.

In regard to the development of the red blood-corpuscles, the study of comparative anatomy brings HAYEM to the following conclusions (*Archives de Physiologie*, 1879, p. 201). The blood of vertebrates contains constantly a large number of particular elements which undergo great modifications, so that when they escape from the bloodvessels they run together to form a fibrous network. These elements possess, then, qualities totally different from those of the white cells (which remain always independent of that meshwork), qualities which correspond to special histological and histo-chemical characters. Between the largest and smallest of these elements there are always to be found intermediate specimens, which show that we have to do merely with one and the same element in the course of evolution. In the course of development these elements lose their primary characteristics and assume those of the red blood-disk. In spite of the two different types under which the red corpuscles present themselves (nucleated and non-nucleated), the evolution which these elements undergo is the same in all vertebrate animals. In all cases they commence by being hæmatoblasts, nucleated or non-nucleated, of which the general physiological properties are the same in all classes. Under certain conditions the intermediate forms become very abundant, as, for example, when the animals have been subjected to considerable hemorrhage, to which succeeds a phase of regeneration of blood.—*Lond. Med. Record*, Nov. 15, 1879.

MATERIA MEDICA AND THERAPEUTICS.

On Benzoate of Soda.

At the meeting of the Znaim Association of Physicians in Mähr-Budwitz, Dr. ULLMANN read a paper on new remedies, in which he states (*Allegemeine Med. Chirurg. Zeitung*, 1879): "Benzoate of soda was recommended by Prof. Klebs for all infectious diseases created by vegetable parasites. Letzerich especially praised benzoate of soda as a remedy for diphtheria, but experiments with it in Vienna have not proved successful, etc." If we now investigate the series of experiments by Dr. Gräundinger, we find that the patients were taken to the Children's Hospital of Dr. Wiederhofer, of Vienna, from two to five days after they were affected. We further observe, that in the children who died, transmitted exudations, acute morbus Brightii, hemorrhages of the peritoneum, pronounced increase of the lungs, bronchiectasis, bronchitis, atelectasis, florid rachitis, etc., were found; that, therefore, in some of them serious secondary phenomena, and in others, either constitutional diseases or other affections existed, by which the capability of resisting the diphtheritic process had been considerably reduced. The majority of those who died were badly nourished and weak. It is obvious that, under such conditions, even the best and most careful treatment, as well as the best and safest method, cannot command great success. Benzoate of soda, although very effective, has therefore, been tried under very unfavourable conditions. He maintains, however, that benzoate of soda has, of all remedies hitherto known, the most favourable therapeutic influence on the diphtheritic process, although it will probably never answer such expectations as those of Gnündinger. Many other practitioners have also employed this remedy for other infectious diseases with favourable results. Dr. Ullman concludes this article with a brief description of the following remarkable case. Amongst other children, a boy, eight years old, was taken ill with diphtheria of the tonsils and violent general symptoms two months ago. On the second day of the treatment, the morbid process, nevertheless, passed into the larynx, the patient got the barking cough, and severe symptoms of stenosis of the larynx appeared. Besides 15 grammes of benzoate of soda to be taken internally every day, Ullmann also ordered this remedy to be inhaled in a solution of 10 per cent. by means of a steam-inhaling apparatus every two hours, after which treatment, abundant blood-coloured, dough-like, diphtheritic coats were ejected by coughing. After five days, the boy, who had been given up, was cured, but he did not regain his proper voice for a fortnight.—*Lond. Med. Record*, Nov. 15, 1879.

The Physiological Action and Therapeutic Value of Sclerotic Acid.

Sclerotic acid is probably the active principle of ergot of rye. It was discovered in 1877 by Dragendorff of Dorpat, and is an amorphous, cinnamon-brown substance, of the empirical formula $C_{12}H_{19}NO_9$, hygroscopic, and readily soluble in water. Good ergot contains about 4 or 5 per cent. of it in combination with bases. It is a very feeble acid, and in the presence of calcic carbonate only causes an evolution of carbonic acid when warmed. With sodium, however, it forms a stable sclerotinate. With phospho-molybdate of ammonia its aqueous solution gives a dark green, with tannin, a reddish precipitate. So much for its chemistry. Its physiological properties have lately undergone very careful investigation by Nikitin in Professor Rossbach's laboratory at Wurzburg (*Wurzburger Phys. Med. Verhand.*, xiii.; *Centralblatt Med. Wiss.*, No. 42, 1879). He finds that it is so rapidly excreted by the kidneys in warm-blooded animals that not a trace can be detected in from forty to forty-eight hours after its administration. Very large doses cause death by general paralysis; and in warm-blooded animals their immediate effect is a depression of temperature of from 1° to 3° Cent. which continues until death. Professor Binz (*Grundzüge der Arnzneimittellehre. Sechste Auflage*, S. 53) states that 0.01 gramme sclerotic acid gradually brought on general paralysis in a middle-sized specimen of *Rada esculenta*, but that the next day the creature was again well and lively. Nikitin sums up the action of sclerotic acid and its sodium salt as follows:—They both possess the physiological and therapeutic properties of ergot itself, but the sclerotinate is a weaker drug than the acid. Both chiefly act on the central nervous system. Frogs are very sensitive to the acid; among mammals, carnivora are more affected by it than herbivora. In frogs the reflex irritability of the spinal cord is completety abolished; in warm-blooded animals it is never quite lost even just before death. The acid only paralyzes the sensory nerves if brought into direct contact with their peripheral ends; the motor nerves as well as the striped muscles are unaffected by it. In mammals the heart is not influenced even by relatively large doses. The blood-pressure is only permanently reduced by large doses. At death the respiration ceases before the heart. In mammals the acid accelerates the intestinal peristalsis; and it excites contraction both of the pregnant and non-pregnant uterus, pre-existing contraction being intensified so that the organ assumes a paler tint. Nikitin has not observed any poisonous effects on the fœtus *in utero* either from the acid or the sodium sclerotinate. From his experiments on animals, he calculates that an adult man weighing fifty kilogrammes would be killed by about ten grammes sclerotic acid. In any case it is a